

A NEW SPECIES OF THE GENUS *HOLCAUCHEN* FROM SOUTH GANSU, CHINA (STYLOMMATOPHORA, ENOIDEA)

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Abstract A new enid species *Holcauchen nordsiecki* sp. nov. is described from South Gansu. The new species is characterized by the occurrence of the most swollen part at two last whorls, a very weak but distinct parietal tooth, the presence of the weak palatal depression, a weak baso-columellar tooth and a more developed upper tooth, and the absence of the palatal tooth.

Key words Taxonomy, Enidae, shell morphology, genitalia, West China.

1 Introduction

The genus *Holcauchen* was characterized by having no parietal tooth, 0–1 palatal tooth and two columellar teeth, and has an abapertural peripheral depression on body whorl (Schileyko, 1998; Wu & Gao, 2010, Table 1). There are 16 known species and subspecies grouped in this genus (Ancey, 1882; Annandale, 1923; Gredler, 1898 a & b; Haas, 1933; Hilber, 1883; Kobelt, 1899–1902; Möllendorff, 1901; Pilsbry, 1934; Wiegmann, 1901; Chen & Zhang, 2000; Chen, Zhou *et al.*, 2003; Yen, 1939, 1942). The new species from South Gansu described in this paper shows that the parietal tooth, which is known in *Pupopsis* Gredler, 1898 (Wu & Gao, 2010) and in *Clausiliopsis* Möllendorff, 1901 (Wu & Wu, 2009), may weakly present in the genus *Holcauchen*.

2 Material and Methods

Living specimens were relaxed by being drowned in water, transferred to 70 % ethanol which was replaced with ethanol of the same concentration after about 72 hours. The soft part was taken out by the help of injecting tooth cleaner-making pulse jet water into a ca. 0.5 mm hole drilled on apex beneath embryonic shell. Shell and genitalia were measured with a calibrated digital vernier calliper and on photo respectively, both to the nearest 0.1 mm. Whorl numbers were counted as described by Kerney & Cameron (1979) and taken with 1/8 (0.125) whorl accuracy. Measurements of soft parts were taken from the specimens preserved in 70 % ethanol. Directions used in descriptions: proximal = towards the genital atrium; distal = away from the genital atrium.

Abbreviations: A-1-most proximal section of penial appendix; A-2-penial appendix section between

and thicker than A-1 and A-3, usually bulb-shaped; A-3-section of the penial appendix connecting proximally A-2 and distally A-4; A-4-thinnest part of the penial appendix between A-5 and A-3; A-5-distal part of the penial appendix, more or less swollen. Möllendorff, O. von.

Institutional acronym. HBUHM; Mollusc collection of the Museum of Hebei University, Baoding, China.

3 Systematic Account

Stylommatophora Schmidt, 1855

Enoidea Woodward, 1903

Enidae Woodward, 1903

Holcauchen Möllendorff, 1901

Buliminus (*Holcauchen*) Möllendorff, 1901: 362; Wiegmann, 1901: 276; Schileyko, 1998: 192.

Type species: *Buliminus sulcatus* Möllendorff, 1901; original designation.

Holcauchen nordsiecki sp. nov. (Figs 1–6)

Diagnosis. Shell most swollen at penultimate whorl and body whorl. Abapertural peripheral depression on body whorl and parietal tooth weakly present. Palatal tooth absent. Columella with a weak baso-columellar tooth and a more developed upper tooth. Shell measurement: 6.250–6.875 whorls; 6.9–7.0 mm high; 2.4–2.7 mm in diameter major.

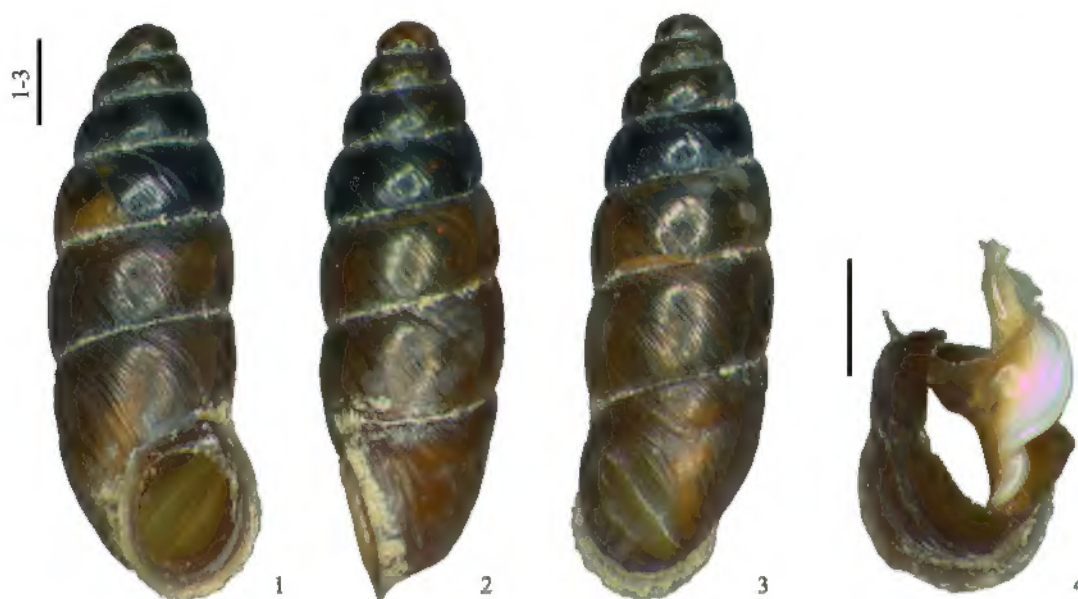
Holotype, HBUHM06664-specimen 1, fully mature shell with soft parts (fma); Wenxian County, Gansu (33°05'N, 104°21'E; alt. 1 269 m); 9 Aug. 2011; collection WU Min, XU Qin and Prem B. Buhda. Paratypes, HBUHM06664-specimen 2–3, 2 fma; HBUHM06664-specimen 4, 1 fully mature empty shell; same collection data as holotype.

Shell. Fusiform; apex not acuminate; dextral; thin-shelled; solid; semitranslucent; glossy; with most

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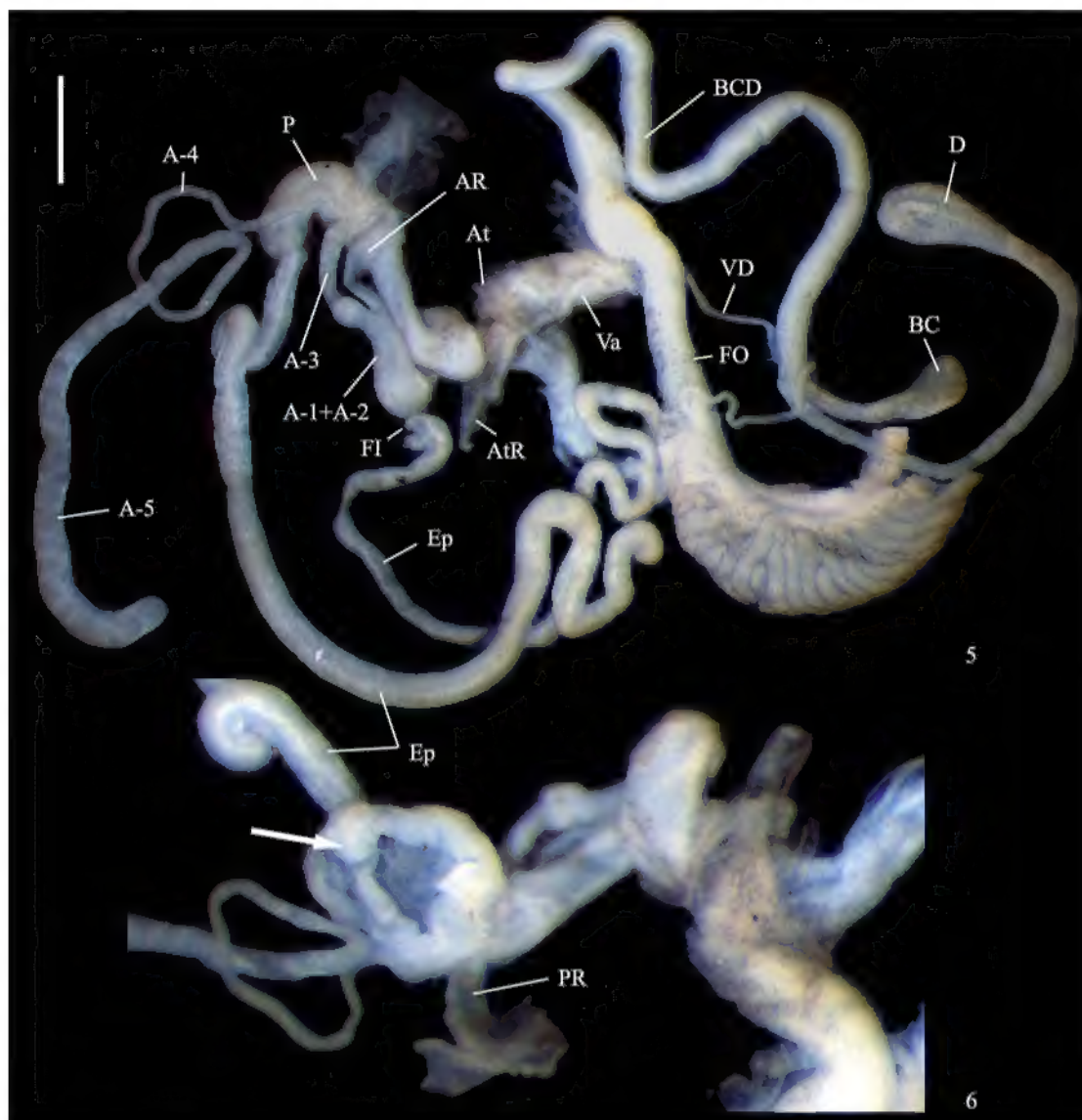


Figs 1 – 4. *Holcauchen nordsiecki* sp. nov. 1 – 3. HBUMM06664-specimen 1, holotype. 1. Apertural view. 2. Lateral view. 3. Ab-apertural views. 4. HBUMM06664-specimen 2, paratype, inside view of aperture, showing the columellar teeth. Scale bars = 1 mm.

swollen part occurred at penultimate whorl and body whorl; with 6.250 – 6.458 – 6.875 whorls; height 6.9 – 6.9 – 7.0 mm; diameter major 2.4 – 2.5 – 2.7 mm; height / diameter major ratio 2.63 – 2.79 – 2.91. Growthlines fine and clear. Whorls convex; not speckled; with spiral fine grooves peripherily on body whorl; not shouldered. Embryonic shell smooth; polished; with 1.375 whorls. Postnuclear whorls smooth. Suture normal, without narrow defined zone on beneath whorl. Last whorl almost straight in front; straight at periphery; with a rugate region with crowded and/or thickened growthline-like folds at abapertural side near aperture. Aperture in a plane and straight; ovate; its insertions separated; slightly oblique; completely attached to body whorl; armed; with a weak angular tubercle; 2.2 – 2.3 – 2.4 mm high; 1.7 – 1.8 – 1.8 mm broad. Ratio of shell height to aperture height 2.87 – 3.00 – 3.17. Secondary aperture absent. Palatal tooth absent. Palatal margin rounded; toothless. Peristome sharp; expanded; reflexed with distinct cuff. Cuff made by the reflexed peristome straight and not curved backward. Parietal callus distinct. Parietal tooth very weakly but distinctly present. Angular tooth and parietal tooth far separate. Palatal wall indistinctly with depression. Columellar margin reflexed; with a weak baso-columellar tooth and a more developed upper tooth; not sinuous. Columella not truncate; vertical. Outer edge of columellar lip oblique axially. Umbilicus a narrow slit. Shell uniformly colored; brown including aperture. Apical whorls normally colored.

Genitalia. Vas deferens short; evenly thick; entering epiphallus laterally; entering epiphallus with

distinct demarcation with epiphallus; entering epiphallus not at angle. Epiphallus long; narrowed towards distal end; externally smooth; forming a few loops. Epiphallic caecum absent. Flagellum present; very short; knob-like; proximally normal; with tip blunt. Penis clavate and distally enlarged; terminally entering epiphallus; thin-walled. Longitudinal pilasters more than two; not fused at epiphallic pore; forming 2 V-shaped structures. V-shaped pilaster with proximal free end approaching at penial retractor insertion; with distal end fused to be a papilla. Papilla small. Penial process absent. Penial verge absent. Penial appendix present; moderately long; branched off from proximal portion of penis; divided into sections A-1-A-5; with A-1 fused with A-2, A-3 distinct, and A-4 fused with A-5. A-1 short. A-5 short; straight. Penial retractor biramous; attached to diaphragm in close proximity to each other; with penial branch attaching to medial penis; with appendical branch attaching to A-1 + A-2. Additional retractor rather than penial or appendical absent. Muscular band connecting vagina and epiphallus absent. Atrium short; with strong atrial retractor. Free oviduct short; subequal to vagina in length. Vagina short; not swollen; straight; not lined with loose, spongy tissue; unpigmented. Bursa copulatrix duct moderately long; proximally straight. Bursa copulatrix well defined. Diverticle normally present; longer than reservoir; expanded. Bursa copulatrix and diverticle distinguishable; forked more distally from their base. Measurement of genitalia: penis 1.8 mm; epiphallus 11.3 mm; flagellum 0.1 mm; vas deferens 3.4 mm; vagina 0.9 mm; free oviduct 0.8 mm; duct of bursa copulatrix 5.4 mm;



Figs 5 - 6. *Holcauchen nordsiecki* sp. nov., HBUMM06664-specimen 2, paratype. 5. General view of genitalia. 6. Interior view of penis, magnified; arrow indicating the tiny papilla formed by the fused distal penial pilasters. A-1. Most proximal section of penial appendix. A-2. A section between and thicker than A-1 and A-3. A-3. The part connecting proximally A-2 and distally A-4. A-4. Thinnest part of the penial appendix between A-5 and A-3. A-5. Distal part of the penial appendix. At. Atrium. AtR. Atrial retractor muscle. AR. Retractor muscle of the appendicular branch. BC. Bursa copulatrix. BCD. Bursa copulatrix duct. D. Diverticle. Ep. Epiphallus. FI. Flagellum. FO. Free oviduct. P. Penis. PR. Retractor muscle of the penial branch. Va. Vagina. VD. Vas deferens. Scale bar = 0.5 mm.

bursa copulatrix 0.5 mm; diverticle 2.9 mm; A-1 + A-2 0.9 mm; A-3 0.4 mm; A-4 + A-5 5.1 mm (HBUMM6664-specimen 2, paratype).

Etymology. The new species is named after German malacologist Hartmut Nordsieck; noun.

Taxonomic remarks. On body whorl, as *H. hyacinthi* (Gredler, 1898) which is geographically nearby, the new species has a weak abapertural peripheral depression. Compared to the other *Holcauchen* species with two columellar teeth of differentiated development, i. e. *H. micropeas* (Mildff, 1901) and *H. sulcatus* (Mildff, 1901) (both with distinct abapertural peripheral depression), the

new species' shell is swollen at last two whorls rather than at swollen at body whorl or at penultimate whorl.

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中国甘肃南部沟颈螺属一新种 (柄眼目, 艾纳螺总科)

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摘 要 描述了栖息于甘肃南部的陆生贝类艾纳螺科 1 新种, 诺氏沟颈螺 *Holcauchen nordsiecki* sp. nov.。与各已知种相比, 诺氏沟颈螺的体螺层和次体螺层最膨大; 腔壁齿极弱; 唇壁板齿阙如; 唇壁凹陷极微弱; 具上大下小 2 枚轴唇齿; 在生殖系统中, 鞭状器小; 成荚器无盲囊; 具纳精囊管分支盲管。

诺氏沟颈螺, 新种 *Holcauchen nordsiecki* sp. nov. (图 1~6)

新种的鉴别特征: 体螺层与次体螺层最膨大; 腔壁齿极弱; 无唇壁板齿; 唇壁凹陷极微弱; 轴唇齿 2 枚, 上大下小。鞭状器小; 成荚器无盲囊; 纳精囊管具分支盲管。贝

关键词 分类学, 艾纳螺科, 贝壳形态, 生殖系统, 中国西部。
中图分类号 Q959.212

壳: 螺层数 6.25–6.88; 壳高 6.9–7.0 mm; 壳径 2.4–2.7 mm。

正模, HBUMM06664-specimen 1, 具软体部的成体; 甘肃文县 (33°05'N, 104°21'E; 海拔 1 269 m), 2011-08-09; 吴岷、徐沁、Prem B. Buhda 采。副模, HBUMM06664-specimen 2~3, 2 头具软体部的成体; HBUMM06664-specimen 4, 1 枚成熟空壳; 采集数据同正模。

词源: 新种种名源自德国贝类学家 Hartmut Nordsieck 的姓氏; 名词。

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